

FORM PTO-1390		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 1315-036
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/937216
INTERNATIONAL APPLICATION NO. PCT/KR00/00270	INTERNATIONAL FILING DATE 28 March 2000 (28.03.2000)	PRIORITY DATE CLAIMED 29 March 1999 (29.03.1999)	
TITLE OF INVENTION AN APPARATUS FOR REPRODUCING DIGITAL VOICE			
APPLICANT(S) FOR DO/EO/US Young-Kwon JUN			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input type="checkbox"/> A English translation of the International Application into English (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input type="checkbox"/> is attached hereto b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154 371 (c)(2) 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendment has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A English translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A English translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 			
Items 11. to 20. below concern other document(s) or information included:			
<ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4) 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4) 20. <input type="checkbox"/> Other items or information. <ol style="list-style-type: none"> a. 			

U.S. APPLIC. NO. (if known, see 37 CFR 1.5) <div style="font-size: 1.5em; font-weight: bold;">09/937216</div>	INTERNATIONAL APPLICATION NO. PCT/KR00/00270	ATTORNEY'S DOCKET NUMBER 1315-036
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21. <input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$ 1000.00 International Search fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO and JPO \$ 860.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 710.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$ 690.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) And all claims satisfied provisions of PCT Article 33(2)-(4) \$ 100.00 <div style="text-align: right; font-weight: bold;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>	CALCULATIONS	PTO USE ONLY																				
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	\$ 1000.00																					
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	\$ 130.00																					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:20%;">CLAIMS</th> <th style="width:20%;">NUMBER FILED</th> <th style="width:20%;">NUMBER EXTRA</th> <th style="width:20%;">RATE</th> </tr> <tr> <td>Total Claims</td> <td>15 - 20 =</td> <td>0</td> <td>X \$18.00</td> </tr> <tr> <td>Independent Claims</td> <td>1 - 3 =</td> <td>0</td> <td>X \$78.00</td> </tr> <tr> <td colspan="3">Multiple dependent claim(s) (if applicable)</td> <td>+ \$260.00</td> </tr> <tr> <td colspan="3" style="text-align: right; font-weight: bold;">TOTAL OF ABOVE CALCULATIONS =</td> <td>\$ 0.00</td> </tr> </table>	CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	Total Claims	15 - 20 =	0	X \$18.00	Independent Claims	1 - 3 =	0	X \$78.00	Multiple dependent claim(s) (if applicable)			+ \$260.00	TOTAL OF ABOVE CALCULATIONS =			\$ 0.00	\$ 0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE																			
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<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.	\$ 0.00																					
SUBTOTAL =	\$ 1,130.00																					
Processing fee of \$130.00 for furnishing the English translation later than the <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).	\$ 0.00																					
TOTAL NATIONAL FEE =	\$ 1,130.00																					
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property	\$ 0.00																					
TOTAL FEES ENCLOSED =	\$ 1,130.00																					
	Amount to be: \$																					
	refunded																					
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a. ☐ A check in the amount of \$ XXX.XX to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. XXX in the amount of \$ XXX to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 07-1337. A duplicate copy of this sheet is enclosed.

c. ☒ Fees are to be charged to a credit card **WARNING:** information on this form may be public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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 NAME
 19,641
 REGISTRATION NUMBER

Docket No.: 1315-036

09/16/2001 JC16 Rec'd PCT/PTO SEP 24 2001
09/937216 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Young-Kwon JUN :
Serial No. Not yet assigned : Group Art Unit: Not yet assigned
Filed: herewith : Examiner: N/A

For: AN APPARATUS FOR REPRODUCING DIGITAL VOICE

PRELIMINARY AMENDMENT

Assistant Commissioner For Patents
Washington, D.C. 20231

Dear Sir:

Preliminary to examination of the above-referenced application, please amend the application:

IN THE CLAIMS:

Please amend claims 11 and 12 as follows:

11. (Amended) An apparatus for reproducing digital voice according to claim 1 wherein said control section comprising:
an adjustment signal input section having a number of adjustment keys to receive the input of the user's desires for control;
a system controller for recognizing signals provided by said adjustment signal input section and outputting relevant control signals; and
a frame address calculator for providing address information of digital data in

obedience to the control signals transmitted from said system controller.

12. (Amended) An apparatus for reproducing digital voice according to claim 1 wherein said output section comprising:
a low pass filter for filtering off high frequency band signals mixed in the analog data provided by said D-A (digital-analog) converter and passing only the remaining signals as belong to the band audible to human ear;
an amplifier for receiving the vocal signals passed on by said amplifier after converting them to audible voice.

MARKED-UP VERSION SHOWING CHANGES

14

9. An apparatus for reproducing digital voice according to Claim 4, wherein said literal text data are provided by net-work devices.

5 10. An apparatus for reproducing digital voice according to Claim 5, wherein said literal text data are provided by a personal communication terminal device connected with said interface connector.

11. An apparatus for reproducing digital voice according to ^{claim 1} [any one of Claims 1
10 through 10] wherein said control section comprising:

an adjustment signal input section having a number of adjustment keys to receive the input of the user's desires for control;

15 a system controller for recognizing signals provided by said adjustment signal input section and outputting relevant control signals; and,

a frame address calculator for providing address information of digital data in obedience to the control signals transmitted from said system controller.

20

12. An apparatus for reproducing digital voice according to ^{claim 1} [any one of Claims 1
through 10] wherein said output section comprising:

a low pass filter for filtering off high frequency band signals mixed in the analog
25 data provided by said D-A (digital-analog) converter and passing only the remaining

signals as belong to the band audible to human ear;

an amplifier for receiving the vocal signals passed on by said low pass filter and amplifying them; and

5

a speaker for outputting the vocal signals amplified by said amplifier after converting them to audible voice.

13. An apparatus for reproducing digital voice according to Claim 1, wherein said
10 memory medium is a semiconductor memory device.

14. An apparatus for reproducing digital voice according to Claim 1, wherein said memory medium is a compact disk.

15 15. An apparatus for reproducing digital voice according to Claim 14, wherein said control section further comprises a servo control section for driving said compact disk.

5 An Apparatus for reproducing digital voice

Field of the Invention

10 The present invention relates to an apparatus for reproducing digital voice, and particularly to an apparatus for reproduction, which can output such vocal data as are stored in a given memory device and other literal data in a digital form, by converting them into audible voice.

15 Background Art

By means of reproducing such data as the literal data input by the computer keyboard, such vocal data as are converted from printing in type in books and magazines, and such data as are provided by a memory device which stores literal data converted from
20 material in type by the scanner or the optical character reader (OCR), viz. by means of reproducing all these the present invention facilitates the availability of a vast quantity of information.

Advance of electronic communications industry and progress of such information
25 implements as internet and other communication facilities along with that of the peripheral

The present invention is intended to provide an apparatus for reproducing digital
25 voice, that is, for converting literal information into human voice audible to the ear for

any in another medium.

To achieve all these objectives, the apparatus of the present invention characteristically consists of a memory medium for storage of data, a restoration section
5 for converting the data stored in the memory medium into vocal data, an output section for playing in audible voice the vocal data provided from the restoration section, and a control section which, by choice of the user, outputs signals for control of both the re-production section and output section.

10 A particular characteristic feature of the apparatus of the present invention is that the data stored in the memory medium is literal text data.

Another particular characteristic feature of the apparatus of the present invention is that the data stored in memory medium are compressed vocal data.

15

Brief Description of Drawings

Fig. 1 is a block diagram showing a preferred embodiment of an apparatus in accordance with the present invention.

20

Fig. 2 is a block diagram of an alternate embodiment for an apparatus of the present invention.

Fig. 3 is a block diagram illustrating the connection of the apparatus for reproducing
25 digital voice of the present invention with other implements.

Symbols for Main Components in Drawings

110: memory and interface connector section

5

120: restoration section

130: output section

10

140: control section

300: extraneous input section

Description of the Preferred Embodiments

15

Below, the construction of the apparatus for reproducing digital voice of the present invention is described together with its functions, the attached diagrams being made reference to when need be. Fig. 1 is a block diagram illustrating the construction of the apparatus for reproducing digital voice of the present invention.

20

The apparatus consists of an interface connector section **111** for connection with other implements, a memory medium **112** storing compressed digital voice data made by conversion of letters into sounds, a restoration section **120** for restoration of the vocal data stored in the memory medium **112** from digital to analog data, an output section **130** for
25 conversion of the data provided by the restoration section **120** into audible voice

perceptible to the user, and a control section **140** to output signals, at the user's choice, for control of the restoration section **120** and the output section **130**.

The interface connector section **111** can be materialized by the use of an infrared ray
5 communication port, RS-232C and USB ports, and the like.

The memory medium stores vocal data, converted from literal data and compressed
for storage, for the storage which such elements as semiconductor memory, compact disks,
and the like can be made use of, and for the semiconductor memory such semiconductor
10 elements as ordinary ROM, flash memory, or ferroelectrics random access memory can be
used. To achieve the objectives of the present invention the memory medium has to be in
a form which can be freely attached to or pulled out from the reproduction section, and as
prerequisite needs to be easily exchangeable.

15 The restoration section **120** consists of a memory control **121** which reads the data in
the memory medium selectively in obedience to the control signal from the control section
140 and of a digital-analog converter **123**, which converts to analog signals and outputs the
digital data provided by a decoder **122** which expands and re-stores the data provided
through the memory control **121**.

20

The output section **130** consists of a low pass filter **131** which receives analog data
from the restoration section **120** and so filters out the high frequency wave signals mixed
in the analog data that it can pass only the frequency waves belonging to the band audible
to the user; an amplifier **132** which receives and amplifies the vocal signals filtered and
25 passed by the low pass filter **131**; and a speaker **133** which outputs the vocal signals

In order that digital vocal data may be restored to their original magnitude the decoder **122** expands and restores to the original magnitude such digital vocal signals as have been compressed in a ratio of, say 1 : 16, whereby it is made possible to increase the time for output of the vocal information. The D-A converter **123** converts the restored digital vocal signals into analog vocal signals and outputs them to the low pass filter **131**.

The low pass filter **131** filters the unnecessary high frequency wave signal elements beyond the audible vocal zone off the provided analog vocal signals and passes the remaining analog vocal signals on to the amplifier **132**. The amplifier **132** receives the filtered analog vocal signals, amplifies them, and provides them so as to be output through
5 the speaker **133**.

The system controller **142** can make use of a microprocessor, a digital signal processor, or the like, and has a function of controlling main components in the system.

10 For instance, if an input key works, this information processing element sends off a PCM (pulse code modulation) signal to a proper element to induce action. In the case of restoration of an information signal, the system controller **142** sends off a status request command to the memory control **121** and receives compressed digital vocal data in a 16 bit format. At this time, in order to assign positions to the compressed digital vocal data a
15 certain address is registered with a register inside the system controller **142**.

The system controller **142** receives byte information stored in the form of files from the memory control **121** in regular order by means of the frame address calculator **143**. In other words, the system controller **142** monitors conveyance of data and, when the D-A
20 converter **123** gets ready, now reads data at a certain position by the bite unit, and conveys them to the decoder **122**. The decoder **122** receives data in a unit of 28 and the like, expands them by means of pulse code modulation, and outputs them. The thus output signals are converted into analog signals by means of the D-A converter **123**. The analog vocal signals which are output from the D-A converter **123** are cleared of the unnecessary
25 noise by the low pass filter **131**, amplified by the amplifier **132**, and are output in the form

of audible voice through the speaker **133**. The system controller **142** contains a logic circuit, whereby, in case the earphone jack is inserted with an ear phone, detects this and stops operation of the speaker **133**. In case the memory medium is a flash memory it can be connected with the reproducing device by means of a 68-pin PCMCIA connector or the
5 like.

In case the memory medium is a compact disk the system control section **140** has to be equipped with a servo control device for control of the compact disk, and regarding the other matters, no further description is considered necessary since pertinent techniques
10 are all already publicly known.

Fig. 2 is a block diagram illustrating another example of embodiment of the present invention, and this example covers the case, where the data stored in the memory medium are literal data, unlike in Fig. 1. At this time, the literal data can be provided in
15 compression, depending upon the different types of the memory media.

This embodiment consists of a memory medium storing literal data and a restoration section **220**, the latter having functions including that of converting the digital literal data stored in the memory medium **212** into voice. The memory medium contains literal data
20 entered by the computer keyboard and other digital literal data rendered from printed literal data.

The restoration section **220**, unlike at the time of reproducing already digitalized vocal data, contains a TTS (text to speech) device **222** for conversion of digital literal data
25 to vocal.

25 As has been described above, the present invention, capable for reproducing in-

formation rendered in digital data to be heard with the ear, makes it possible to reduce the size, weight, and production cost of the apparatus, while at the same time facilitating the availability of information even riding in a means of transport. In especial, in a vehicle the subject apparatus, unlike the existing electronic book which reproduces data on a visual
5 monitor, can be free of disturbance in vision, even if it is inevitably subjected to shakes.

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Claims

1. An apparatus for reproducing digital voice, comprising:

5 a memory medium for storing digital data;

a restoration section for restoring digital data stored in said memory medium into
vocal data;

10 an output section for outputting said vocal signals provided by said restoration
section in audible voice; and,

a control section for outputting signals so as to control said restoration section
and said output section according as the user desires.

15

2. An apparatus for reproducing digital voice according to Claim 1, which is
characterized in that said digital data stored in said memory medium are compressed
vocal data.

20 3. An apparatus for reproducing digital voice according to Claim 2, wherein said
restoration section comprises:

a memory controller for reading said digital data stored in said memory medium
selectively in obedience to the control signals provided by said control section;

25

9. An apparatus for reproducing digital voice according to Claim 4, wherein said literal text data are provided by net-work devices.

5 10. An apparatus for reproducing digital voice according to Claim 5, wherein said literal text data are provided by a personal communication terminal device connected with said interface connector.

11. An apparatus for reproducing digital voice according to any one of Claims 1
10 through 10, wherein said control section comprising:

an adjustment signal input section having a number of adjustment keys to receive the input of the user's desires for control;

15 a system controller for recognizing signals provided by said adjustment signal input section and outputting relevant control signals; and,

a frame address calculator for providing address information of digital data in obedience to the control signals transmitted from said system controller.

20

12. An apparatus for reproducing digital voice according to any one of Claims 1 through 10, wherein said output section comprising:

a low pass filter for filtering off high frequency band signals mixed in the analog
25 data provided by said D-A (digital-analog) converter and passing only the remaining

signals as belong to the band audible to human ear;

an amplifier for receiving the vocal signals passed on by said low pass filter and amplifying them; and

5

a speaker for outputting the vocal signals amplified by said amplifier after converting them to audible voice.

13. An apparatus for reproducing digital voice according to Claim 1, wherein said
10 memory medium is a semiconductor memory device.

14. An apparatus for reproducing digital voice according to Claim 1, wherein said memory medium is a compact disk.

15 15. An apparatus for reproducing digital voice according to Claim 14, wherein said control section further comprises a servo control section for driving said compact disk.

PCT

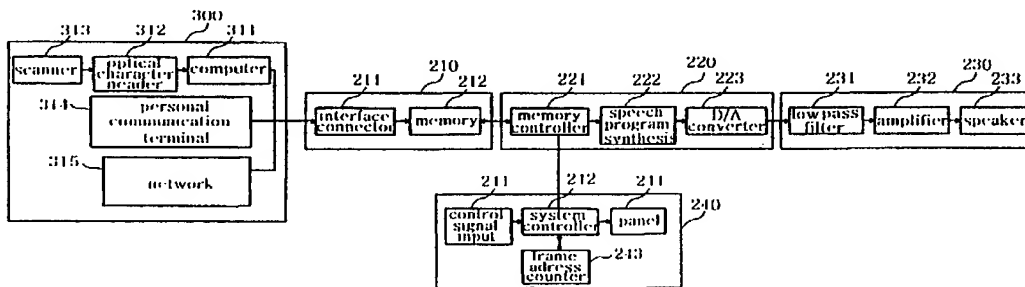
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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			(43) International Publication Date: 5 October 2000 (05.10.00)
(21) International Application Number: PCT/KR00/00270 (22) International Filing Date: 28 March 2000 (28.03.00) (30) Priority Data: 1999/10811 29 March 1999 (29.03.99) KR 2000/2719 20 January 2000 (20.01.00) KR (71) Applicant (for all designated States except US): TRUST & OBEY CO., LTD. [KR/KR]; 4410 HTC, 62-1 WhaAm-dong, Yusung-gu, Taejeon 305-348 (KR). (72) Inventor; and (75) Inventor/Applicant (for US only): JUN, Young-Kwon [KR/KR]; 103-6-1 Narae Apartment, 462-4, Jeon-min-dong, Yu-song-ku, Taejeon 305-390 (KR). (74) Agents: YIM, Suk-Jae et al.; Poonglim Building, 8th floor, 823-1, Yeoksam-dong, Kangnam-ku, Seoul 135-784 (KR).		(81) Designated States: AU, BR, CA, CN, DE, GB, ID, IL, IN, JP, MX, NZ, PL, SG, US, VN, ZA, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: AN APPARATUS FOR REPRODUCING DIGITAL VOICE



(57) Abstract

The present invention relates to an information device, which converts those data stored in the form of digital signs in a memory device into analog signs audible to the ear like human voice, thereby facilitating the availability of a vast quantity of information through reproduction into voice of the literal text input by the computer keyboard, data recorded in voice of information printed in type in books or magazines, and such other data originally in letters but rendered digital by means of the scanner and optical character reader (OCR). The apparatus for reproducing digital voice of the present invention consists of a memory medium and a reproduction device proper, the data stored in the memory medium being information converted into human voice, literal data input by the computer keyboard, vocal data in human voice, and such other literal data as are converted from type into digital signs by the scanner and optical character reader. For the memory medium, such semiconductor memories as ROM (Read Only Memory), flash memory, and FRAM (ferroelectrics random access memory) along with such other recording media as compact disks can be made use of.

1/3

FIG. 1

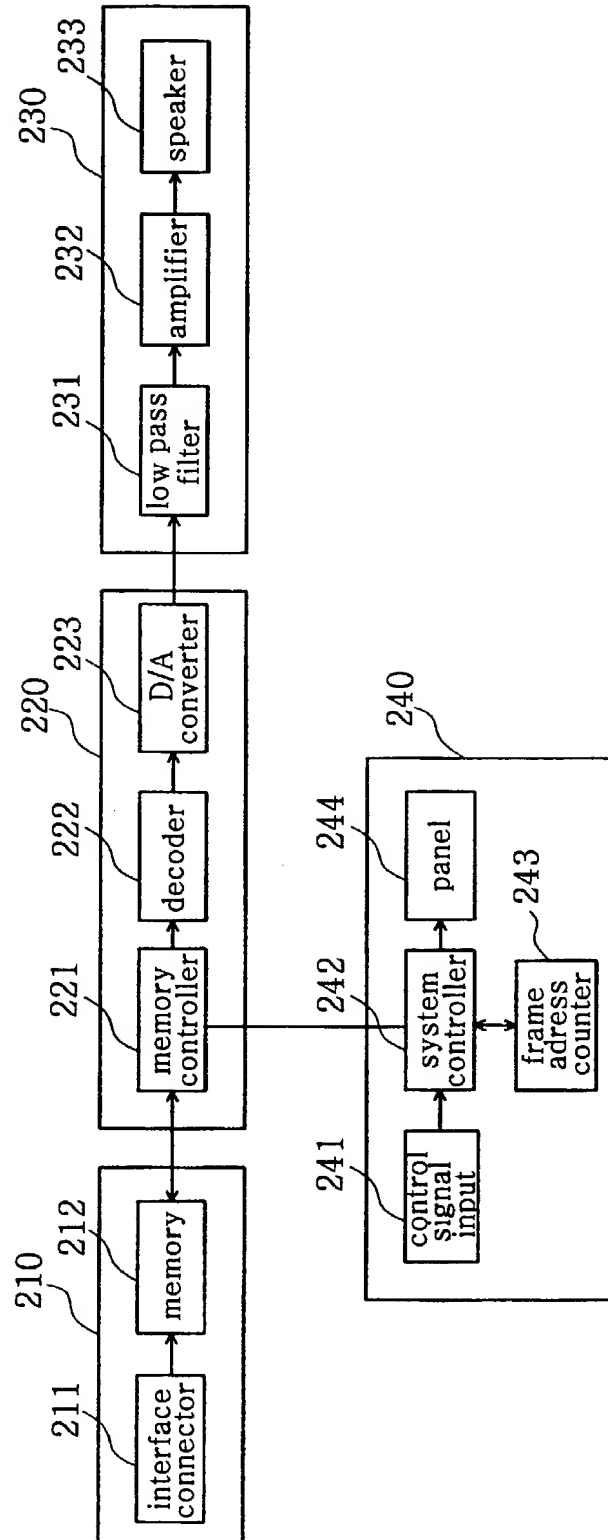


FIG. 2

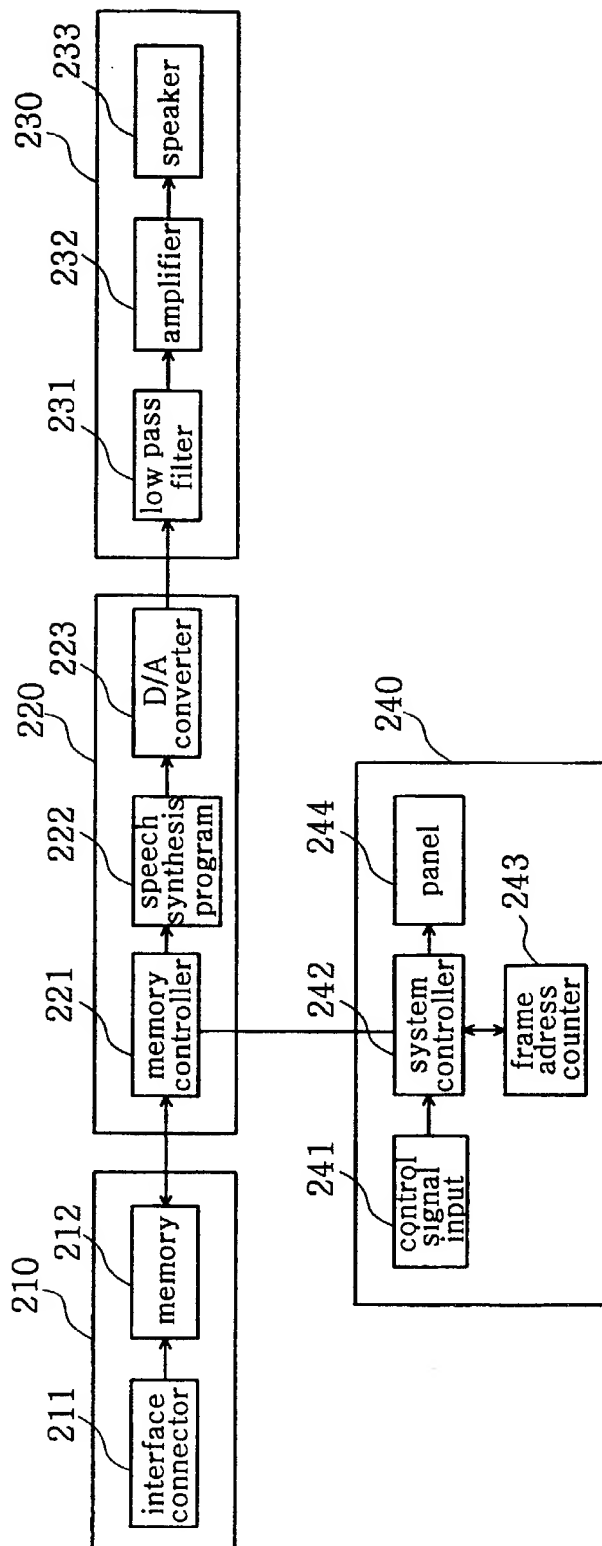
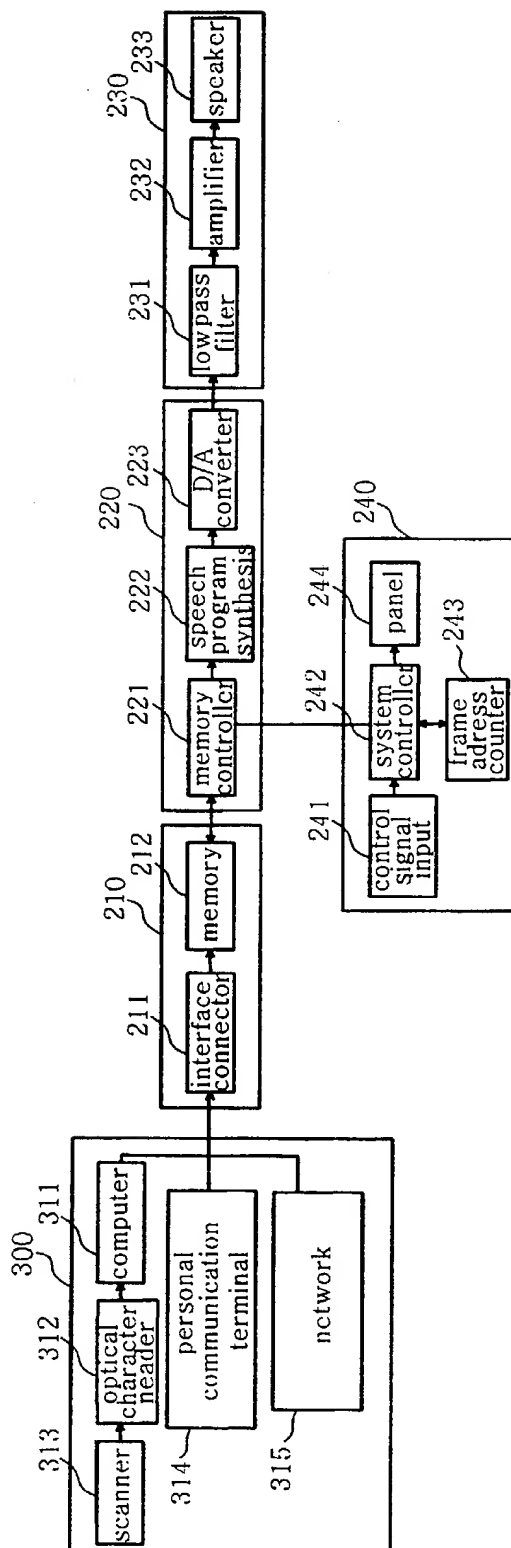


FIG. 3



DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

As a below-named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention (Design, if applicable) entitled: **AN APPARATUS FOR REPRODUCING DIGITAL VOICE** the specification of which (check one):

- ☐ is attached hereto.
☒ was filed on September 24, 2001 as Application Serial No. _____
☒ was filed on March 28, 2000 as International Application (PCT) No. PCT/KR00/00270 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with *Title 37, Code of Federal Regulations, § 1.56*. I hereby claim foreign priority benefits under *Title 35, United States Code § 119* of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which the priority is claimed.

PRIOR FOREIGN APPLICATION(S)

NUMBER	COUNTRY	DAY/MONTH/YEAR FILED	PRIORITY CLAIMED
1999/10811	KOREA	29/03/99	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2000/2719	KOREA	20/01/2000	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under *Title 35, United States Code, § 120* of any United States application(s) or PCT international application(s) designating The United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of *Title 35, United States Code, § 112*, I acknowledge the duty to disclose material information as defined in *Title 37, Code of Federal Regulations, § 1.56* which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (Patented, Pending or Abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under *Section 1001 of Title 18 of the United States Code*, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: I (We) hereby appoint as my (our) attorneys, with full powers of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: Allan M. Lowe, Registration Number 19,641; Benjamin J. Hauptman, Registration Number 29,310; Michael G. Gilman, Registration Number 19,114; Kenneth M. Berner, Registration Number 37,093; and Randy A. Noranbrock, Registration Number 42,940.

Send correspondence to: **LOWE HAUPTMAN GILMAN & BERNER, LLP**
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I hereby authorize the U.S. attorneys and agents named herein to accept and following instructions from WONJON, P.C. INTELLECTUAL PROPERTY LAW FIRM as to any actions to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorneys will be so notified by the undersigned.

☐ See following page(s) for additional joint inventors.

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DATE <u>October 23, 2001</u>	SIGNATURE <u>Young-Kwon Jun</u>